

Paul Alexander (SBN 49997)
Paul.Alexander@arnoldporter.com
ARNOLD & PORTER KAY SCHOLER
Three Embarcadero Center, Tenth Floor
San Francisco, CA 94111
Telephone: 415-471-3100
Facsimile: 415-471-3400

Kristin L. Cleveland (SBN 184639)
kirstin.cleveland@klarquist.com
Klaus H. Hamm (SBN 224905)
klaus.hamm@klarquist.com
Salumeh R. Loesch (*Pro Hac Vice*)
salumeh.loesch@klarquist.com
John D. Vandenberg (*Pro Hac Vice*)
john.vandenberg@klarquist.com
Mark W. Wilson (*Pro Hac Vice*)
mark.wilson@klarquist.com
KLARQUIST SPARKMAN, LLP
121 SW Salmon Street, Suite 1600
Portland, OR 97204
Telephone: 503-595-5300
Facsimile: 503-595-5301

Attorneys for Defendant
Avatar Integrated Systems, Inc.

**UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA**

SYNOPSYS, INC.,

Plaintiff,

v.

AVATAR INTEGRATED SYSTEMS, INC.,

Defendant.

Case No. 5:20-cv-04151-WHO

**DEFENDANT'S NOTICE OF MOTION
AND MOTION TO DISMISS
CORRECTED COMPLAINT AND
MEMORANDUM OF POINTS AND
AUTHORITIES IN SUPPORT**

Date: October 14, 2020

Time: 2:00 pm

Judge: Honorable William H. Orrick

TABLE OF CONTENTS

	Page
NOTICE OF MOTION AND MOTION TO DISMISS	1
MEMORANDUM OF POINTS AND AUTHORITIES	1
I. INTRODUCTION AND SUMMARY	1
II. ARGUMENT	1
A. The '863 Patent Is Invalid Under Section 101 Of The Patent Act.....	1
1. The Claims Are Invalid Under Section 101's Abstractness Exclusion To Patent Eligibility	4
B. The '655 Patent Is Invalid Under Section 101 Of The Patent Act.....	13
1. The Claims Are Invalid Under Section 101's Abstractness Exclusion To Patent Eligibility	16
C. The '640 Patent Is Invalid Under Section 101 Of The Patent Act.....	19
1. The Claims Are Invalid Under Section 101's Abstractness Exclusion To Patent Eligibility	22
D. The Patents' Invalidity Is Ripe For Adjudication Under Rule 12	25

TABLE OF AUTHORITIES

Page(s)

Cases

<i>Alice Corp. Pty. Ltd. v. CLS Bank Int'l</i> , 573 U.S. 208 (2014)	passim
<i>Bilski v. Kappos</i> , 561 U.S. 593 (2010)	13, 19, 24
<i>BSG Tech LLC v. BuySeasons, Inc.</i> , 899 F.3d 1281 (Fed. Cir. 2018)	9, 10
<i>buySAFE, Inc. v. Google, Inc.</i> , 765 F.3d 1350 (Fed. Cir. 2014)	10
<i>Chamberlain Grp., Inc. v. Techtronic Indus. Co.</i> , 935 F.3d 1341 (Fed. Cir. 2019)	10
<i>ChargePoint, Inc. v. SemaConnect, Inc.</i> , 920 F.3d 759 (Fed. Cir. 2019)	10, 13
<i>CyberSource Corp. v. Retail Decisions, Inc.</i> , 654 F.3d 1366 (Fed. Cir. 2011)	5, 17
<i>Digitech Image Tech., LLC v. Electronics for Imaging, Inc.</i> , 758 F.3d 1344 (Fed. Cir. 2014)	6
<i>Elec. Power Grp., LLC v. Alstom S.A.</i> , 830 F.3d 1350 (Fed. Cir. 2016)	6, 8, 23
<i>Enfish, LLC v. Microsoft Corp.</i> , 822 F.3d 1327 (Fed. Cir. 2016)	6, 18
<i>Evolutionary Intelligence, LLC v. Sprint Nextel Corp.</i> , 137 F. Supp. 3d 1157 (N.D. Cal. 2015), <i>aff'd</i> , 677 F. App'x. 679 (Fed. Cir. 2017)	8, 13
<i>Genetic Techs. Ltd. v. Merial L.L.C.</i> , 818 F.3d 1369 (Fed. Cir. 2016)	25
<i>Gottschalk v. Benson</i> , 409 U.S. 63 (1972)	6, 12, 19
<i>In re TLI Commc'ns LLC Patent Litig.</i> , 823 F.3d 607 (Fed. Cir. 2016)	11

1	<i>In re Warmerdam</i> ,	
2	33 F.3d 1354 (Fed. Cir. 1994).....	22
3	<i>Intellectual Ventures I LLC v. Capital One Bank (USA)</i> ,	
4	792 F.3d 1363 (Fed. Cir. 2015).....	11
5	<i>Intellectual Ventures I LLC v. Capital One Fin. Corp.</i> ,	
6	850 F.3d 1332 (Fed. Cir. 2017).....	11
7	<i>Intellectual Ventures I LLC v. Symantec Corp.</i> ,	
8	838 F.3d 1307 (Fed. Cir. 2018).....	6
9	<i>Mayo Collaborative Servs. v. Prometheus Labs., Inc.</i> ,	
10	566 U.S. 66 (2012)	passim
11	<i>Mortgage Grader, Inc. v. First Choice Loan Svcs. Inc.</i> ,	
12	811 F.3d 1314 (Fed. Cir. 2016).....	5, 18
13	<i>OIP Tech., Inc. v. Amazon.com, Inc.</i> ,	
14	788 F.3d 1359 (Fed. Cir. 2015).....	16
15	<i>Papst Licensing GmbH & Co. KG v. Xilinx Inc.</i> ,	
16	193 F. Supp. 3d 1069 (N.D. Cal. 2016),	
17	<i>aff'd</i> , 684 F. App'x 971 (Fed. Cir. 2017).....	5, 17
18	<i>Parker v. Flook</i> ,	
19	437 U.S. 584 (1978)	passim
20	<i>Purepredictive, Inc. v. H2O.AI, Inc.</i> ,	
21	2017 WL 3721480 (N.D. Cal. Aug. 29, 2017),	
22	<i>aff'd</i> , 741 F. App'x 802 (Fed. Cir. 2018)	passim
23	<i>RecogniCorp, LLC v. Nintendo Co.</i> ,	
24	855 F.3d 1322 (Fed. Cir. 2017).....	8, 9, 17, 24
25	<i>SAP Am., Inc. v. InvestPic, LLC</i> ,	
26	898 F.3d 1161 (Fed. Cir. 2018).....	passim
27	<i>Synopsys, Inc. v. Mentor Graphics Corp.</i> ,	
28	78 F. Supp. 3d 958 (N.D. Cal. 2015),	
	<i>aff'd</i> , 839 F.3d 1138 (Fed. Cir. 2016)	1
	<i>Synopsys, Inc. v. Mentor Graphics Corp.</i> ,	
	839 F.3d 1138 (Fed. Cir. 2016).....	5, 6
	<i>Trading Techs. Int'l, Inc. v. IBG LLC</i> ,	
	921 F.3d 1378 (Fed. Cir. 2019).....	5

1 *Two-Way Media Ltd. v. Comcast Cable Commc’ns, LLC,*
2 874 F.3d 1329 (Fed. Cir. 2017).....6, 10, 12

3 *Versata Dev. Grp., Inc. v. SAP Am., Inc.,*
4 793 F.3d 1306 (Fed. Cir. 2015).....11

5 *Voter Verified, Inc. v. Election Sys. & Software LLC,*
6 887 F.3d 1376 (Fed. Cir. 2018).....2

6 **Statutes**

7 35 U.S.C. § 101 passim

8 **Rules**

9 Fed. R. Civ. P. 12 passim

NOTICE OF MOTION AND MOTION TO DISMISS

PLEASE TAKE NOTICE that on Wednesday, October 14, 2020, at 2:00 p.m., or as soon thereafter as the matter may be heard before the Honorable Judge William H. Orrick in the United States District Court for the Northern District of California, San Francisco Courthouse, Defendant Avatar Integrated Systems, Inc. (“Avatar”) by and through its counsel, will and hereby does move the Court to dismiss counts I, II, and VI of the Corrected Complaint (ECF No. 9) pursuant to Rule 12(b)(6) of the Federal Rules of Civil Procedure.

This motion is made on the ground that three of the asserted patents are invalid for patent ineligibility under 35 U.S.C. § 101 and the Supreme Court’s 2014 *Alice* decision. The motion is based on this Notice of Motion and Motion, the below Memorandum of Points and Authorities, the pleadings and papers filed herein, and the argument of counsel at the time of the hearing.

MEMORANDUM OF POINTS AND AUTHORITIES

I. INTRODUCTION AND SUMMARY

In 2012, Plaintiff Synopsys, Inc. (“Synopsys”) sued Mentor Graphics Corp. (“Mentor Graphics”) in this Court for patent infringement. The Court held three of the asserted patents invalid for patent ineligibility under the Supreme Court’s 2014 *Alice* decision, and the Federal Circuit affirmed. *Synopsys, Inc. v. Mentor Graphics Corp.*, 78 F. Supp. 3d 958 (N.D. Cal. 2015), *aff’d*, 839 F.3d 1138 (Fed. Cir. 2016). Despite being in the complex technical field of integrated circuit design, the patent claims were invalid because their alleged innovation was a mental process. History repeats itself. The company Synopsys now sues for patent infringement was recently acquired by Mentor Graphics. The asserted patents are in the same complex technical field. And, at least three of them are invalid for patent ineligibility because their claimed innovation is a mental process.

II. ARGUMENT

A. The ‘863 Patent Is Invalid Under Section 101 Of The Patent Act

Discarding information—that is, selecting certain information to be discarded and certain other information to be retained—is a quintessential mental process. Indeed, selecting which information is significant enough to be retained and which should be deleted from a written work to enhance its

effectiveness is a classic mental process. It is the same in the technology arena: selecting which data should be retained and which should be discarded for a certain operation is inherently a mental process. And, as established by *Alice* and its progeny, that this process of discarding information is accomplished by a computer does not change its fundamental mental nature. This quintessential mental process of discarding information is the focus of asserted U.S. Pat. No. 7,103,863 (ECF No. 1-2) and its claims.

The '863 patent explains that “the key idea is to represent” a design “as a sub-set of the design data . . . with all non-essential information *discarded*.” ('863 7:13–18, ECF No. 1-2 (emphasis added).) The patent’s claims are directed to this “key idea,” namely the mental process of *discarding some information to create a smaller sub-set of information*. As a mental process is ineligible for patenting, the claims are invalid under 35 U.S.C. § 101 as a matter of law. *See Voter Verified, Inc. v. Election Sys. & Software LLC*, 887 F.3d 1376, 1385–86 (Fed. Cir. 2018) (affirming dismissal of complaint asserting infringement of claims directed to “human cognitive actions”); *Purepredictive, Inc. v. H2O.AI, Inc.*, No. 17-cv-03049-WHO, 2017 WL 3721480, at *5 (N.D. Cal. Aug. 29, 2017) (dismissing complaint asserting infringement of claims “directed to a mental process and the abstract concept of using mathematical algorithms to perform predictive analytics”), *aff’d*, 741 F. App’x 802 (Fed. Cir. 2018).

'863 Patent Specification: The patent identifies its “field of the invention” as “designing and verifying the contents and layout of an integrated circuit.” ('863 1:18–22, ECF No. 1-2.) Information used in this technical field includes a “block” of data describing part of a design of the possible circuit. (*See id.* at 1:38–49.) The patent explains that it was “conventional” to use such information blocks in circuit design. (*See id.* at 1:60–2:63; *see also id.* at Fig. 1.) The patent’s alleged advance is to reduce the size of this information block by discarding non-essential information. The “Summary of Invention” describes this reduced set of information as an “abstraction” (*id.* at 2:58–67), and describes this “abstraction” idea as follows:

The *key idea is to represent the design*, not with a simplified mathematical model of reduced accuracy, but *as a sub-set of the design data itself*. The reduced model consists of a copy of the original model,

1 but with *all non-essential information discarded*. Stated another way,
 2 the abstraction is built by *copying only those elements of the logical*
 3 *netlist and physical block implementation that are needed to model the*
 4 *block correctly* in the context of its parent and sibling blocks in the
 hierarchy, thus achieving a large reduction in the quantity of the block's
 data.

5 (*Id.* at 7:13–23 (emphases added).)

6 The specification does not say that a computer is even required to discard the information to
 7 create a smaller sub-set. It devotes more than twelve columns to describing purported examples of
 8 its key idea without mentioning a computer, a processor, or software. (*Id.* at 3:35–16:9.) When it
 9 does mention a computer, it notes, unsurprisingly, that no special computer is needed to discard
 10 information: “Illustrated is a computer system 1310, which may be any general or special purpose
 11 computing or data processing machine such as a PC (personal computer) which can optionally be
 12 coupled to a network 1300.” (*Id.* at 16:11–15.)

13 '863 Patent Claims: The patent has two substantively similar independent claims—claim 1,
 14 reciting a method, and claim 35, an article of manufacture. Each is directed to the “key idea” of
 15 *discarding some information to create a smaller sub-set of information*. Neither requires a non-
 16 generic physical device, a physical circuit, or any particular physical acts. Claim 1 recites:

17 1. A method used in producing a design of an integrated circuit said
 18 circuit design having cells and interconnects, said circuit having a
 19 representation that is hierarchically decomposed into a top-level and a
 20 plurality of blocks, at least some of the plurality of said blocks being
 capable of being further hierarchically decomposed and of having a
 parent block associated therewith, said method comprising:

21 processing at least one of said blocks such that *an abstraction is*
 22 *created* that includes physical interconnect information relating to
 23 interconnects between components within said at least one block,
 24 said physical interconnect information modeling parasitic electrical
 and physical effects of interconnects upon an estimated behavior of
 said integrated circuit, wherein said processing includes:

25 *retaining only a sub-set* of all of said physical interconnect
 26 information which influences physical and electrical behavior of
 27 said parent block; and
 28

1 *retaining only a sub-set* of cells which influences a logical
 2 behavior of said parent block; and

3 utilizing said abstraction in another development phase performed
 4 on said parent block.

5 (*Id.* at 16:65–17:19 (emphases added).)¹

6 This claim begins with a “block” of information and creates a sub-set of this information—
 7 called an “abstraction”—by retaining only some information and discarding other information. That
 8 abstraction information is used in some unspecified manner in a later process. The claim does not
 9 specify *how* the information block is processed, as distinct from the result of that processing.
 10 Although this claim permits using a computer to discard some information to create the abstraction,
 11 what it recites is a mental process: *discarding some information to create a smaller sub-set of*
 12 *information*. All of this applies equally to claim 35.

13 The dependent claims (2–34 and 36–68) recite additional information and information
 14 processing. Each step is something humans do every day albeit with different information content:
 15 “replacing a description” with another description (claim 2), “determining contents” of information
 16 (claim 3), “building a list” (claim 5), “removing” information from a list (claim 6), “labeling”
 17 information (claim 8), “checking to see” if certain information is present (claim 9), “skipping”
 18 information in a list (claim 14), “including” information in the abstraction (claim 27), etc. Each is
 19 inherently a mental process or decision. No claim requires any particular structures or physical acts
 20 to perform these steps or any other part of the claimed abstraction process.

21 **1. The Claims Are Invalid Under Section 101’s** 22 **Abstractness Exclusion To Patent Eligibility**

23 The ’863 patent claims are directed to an abstract idea under *Alice Corp. Pty. Ltd. v. CLS*
 24 *Bank Int’l*, 573 U.S. 208 (2014), and its forebears and progeny, and thus are invalid under 35 U.S.C.
 25 § 101. While presumed valid by statute, they—and all other claims challenged in this motion—

26 ¹ Claim 35 is identical apart from reciting: “An article comprising a computer-readable medium
 27 having instructions stored thereon implementing a method . . . said instructions which when
 28 executed causes . . . [.]” (*Id.* at 20:7–16.)

1 issued before *Alice* and thus were not examined under the patent-eligibility standard of *Alice*.
 2 Thousands of older patent claims have been invalidated under *Alice*. See generally *Mortgage*
 3 *Grader, Inc. v. First Choice Loan Svcs. Inc.*, 811 F.3d 1314, 1322 (Fed. Cir. 2016) (noting “a § 101
 4 defense previously lacking in merit may be meritorious after *Alice*”). Application of the steps
 5 mandated by the Court in *Alice* demonstrates that the ’863 patent claims are invalid.

6 *Alice Step One*: *Alice*’s first step is to determine whether a patent claim is “directed to”
 7 patent-ineligible subject matter such as an abstract idea. *Alice*, 573 U.S. at 217. “Under this inquiry,
 8 we evaluate ‘the focus of the claimed advance over the prior art’ to determine if the character of the
 9 claim as a whole, considered in light of the specification, is directed to excluded subject matter.”
 10 *Trading Techs. Int’l, Inc. v. IBG LLC*, 921 F.3d 1378, 1384 (Fed. Cir. 2019) (citation omitted).

11 Information is a patent-ineligible abstract idea. *Id.* So are mental processes. *Mayo*
 12 *Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 71 (2012); *Parker v. Flook*, 437 U.S.
 13 584, 586 (1978) (holding unpatentable claims directed to “computations [that] can be made by
 14 pencil and paper,” even though “primarily useful for computerized calculations”); *Synopsys, Inc. v.*
 15 *Mentor Graphics Corp.*, 839 F.3d 1138, 1139, 1152 (Fed. Cir. 2016) (holding unpatentable claims
 16 directed to “translating a functional description of a logic circuit into a hardware component
 17 description of the logic circuit” which were “directed to an abstract mental process and contain[ed]
 18 no inventive concept [and were] therefore invalid”); *CyberSource Corp. v. Retail Decisions, Inc.*,
 19 654 F.3d 1366, 1372, 1376–77 (Fed. Cir. 2011) (invalidating patent claims, including one requiring
 20 a computer, because the steps “can be performed in the human mind, or by a human using a pen and
 21 paper”); *Papst Licensing GmbH & Co. KG v. Xilinx Inc.*, 193 F. Supp. 3d 1069, 1091 (N.D. Cal.
 22 2016) (reasoning that “claims that literally require the use of a computer, but nevertheless reflect
 23 routine automation of activities which ‘could all be performed by humans without a computer’ may
 24 be abstract” (citation omitted)), *aff’d*, 684 F. App’x. 971 (Fed. Cir. 2017). And because analyzing
 25 and processing information is what the human mind does, it too is a patent-ineligible abstract idea
 26 when not tied to a specific structure or machine:
 27
 28

Information as such is an intangible. Accordingly, we have treated collecting information, including when limited to particular content (which does not change its character as information), as within the realm of abstract ideas. In a similar vein, we have treated analyzing information by steps people go through in their minds, or by mathematical algorithms, without more, as essentially mental processes within the abstract-idea category.

Elec. Power Grp., LLC v. Alstom S.A., 830 F.3d 1350, 1353–54 (Fed. Cir. 2016) (citation omitted); see *Digitech Image Tech., LLC v. Electronics for Imaging, Inc.*, 758 F.3d 1344, 1350 (Fed. Cir. 2014) (holding the patent “claims an abstract idea because it describes a process of organizing information through mathematical correlations and is not tied to a specific structure or machine”).

Likewise abstract are mere functions and results unlimited by particular structures or acts for how to perform or achieve them. See *Two-Way Media Ltd. v. Comcast Cable Commc’ns, LLC*, 874 F.3d 1329, 1337 (Fed. Cir. 2017) (holding patent-ineligible a claim that “requires the functional results of ‘converting,’ ‘routing,’ ‘controlling,’ ‘monitoring,’ and ‘accumulating records,’ but does not sufficiently describe how to achieve these results in a non-abstract way”).

Abstract ideas are ineligible for patenting even if “novel and useful,” *Flook*, 437 U.S. at 588, 591, and “narrow and specific,” *Mayo*, 566 U.S. at 88; see *Gottschalk v. Benson*, 409 U.S. 63, 71, 71–73 (1972) (holding ineligible a narrow seven-step mathematical algorithm); *SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1163 (Fed. Cir. 2018) (“We may assume that the techniques claimed are ‘[g]roundbreaking, innovative, or even brilliant,’ but that is not enough for eligibility.” (citation omitted)); *Synopsys*, 839 F.3d at 1151 (“[A] claim for a new abstract idea is still an abstract idea.”).

A patent claim may *recite* an abstract idea without being “directed to” it. For example, such a claim may instead be directed to a patent-eligible improvement in how computers operate. *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016). But the claim is directed to the abstract idea if it recites merely using a computer as a tool to perform the idea, without changing how the computer operates. See *id.* at 1336; *Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1321 (Fed. Cir. 2018) (distinguishing the claim at issue from those found eligible in *Enfish* because it did “not improve or change the way a computer functions”); *Elec. Power Grp.*,

830 F.3d at 1354 (explaining the *Enfish* claims “focused not on asserted advances in uses to which existing computer capabilities could be put, but on a specific improvement—a particular database technique—in how computers could carry out one of their basic functions of storage and retrieval of data”); *Purepredictive*, 2017 WL 3721480, at *5 (“While [the claims] may invoke computers as a tool for this process, the claims do not make a specific improvement on an existing computer-related technology.”).

Here, there is no mystery as to the alleged advance contributed by the ’863 patent. As quoted *supra* at pp. 2–3, it expressly identifies “the key idea” as creating a “sub-set” of information—which it calls an “abstraction”—by “discard[ing]” information. (’863 7:13–18, ECF No. 1-2.) Each claim is directed to this idea. Claim 1 is representative. It recites processing at least one block of information “such that an abstraction is created.” (*Id.* at 17:5–6.) That processing results (in some unspecified manner) in “retaining only a sub-set” of certain information. (*Id.* at 17:13–14.) That abstraction sub-set is then used (again, in some unspecified manner) in designing a circuit. (*Id.* at 17:18–19.) The dependent claims (2–34 and 36–68) recite only additional information and information processing steps, such as making lists, labeling information, etc. Reading the claims in light of the specification’s “key idea,” these claims unquestionably are directed to *discarding some information to create a smaller sub-set of information*.

This is a patent-ineligible abstract idea because it is a mental process and mere information processing. The human brain inherently *discards some information to create a smaller sub-set of information*.

Like many thought processes, this idea can be useful. Less information takes less room, be it stored on paper or in a computer memory. Publishing only high and low forecast temperatures, and discarding hourly forecast temperatures, saves space in a newspaper, for example. This is an inherent benefit of filtering information. It is no surprise, therefore, that the ’863 patent says that using a smaller sized abstraction reduces the amount of memory required and the amount of time needed to analyze the information. (*See id.* at 2:62–67.) This information-based benefit should not be confused with an improved computer. Nothing in the ’863 patent suggests that the idea of

discarding some information to create a smaller sub-set of information either requires or creates better computer capabilities. Nothing precludes using a generic computer from 1998 performing its basic data processing functions in the standard way. On the contrary, the patent’s “specification makes clear that off-the-shelf computer technology is usable to carry out the analysis.” *SAP Am.*, 898 F.3d at 1168; *see* ’863 16:11–15, ECF No. 1-2; *cf. Purepredictive*, 2017 WL 3721480, at *7 (“PPI’s technology, while perhaps an effective method, is simply an implementation of the basic concept of predictive analytics on an apparatus, computer program product, or other medium.”). Like the patents in *Electric Power Group*, the ’863 patent claims a purported advance in uses to which *existing* computer capabilities could be put. 830 F.3d at 1354. Nowhere does the patent claim to have created improved computer capabilities.

Computers, of course, can perform mathematical operations, information processing and other mental processes much faster than a human, but that does not transform the mental process into an improved computer. *See Purepredictive*, 2017 WL 3721480 at *5 (“While PPI claims that this shows it would be impossible for a human to perform such a task, just because a computer can make calculations more quickly than a human does not render a method patent eligible.”). This is so even when computer-level speed is of the essence, such as when periodically updating an alarm limit to avoid danger from an industrial chemical process. *Cf. Flook*, 437 U.S. at 585.

Post-*Alice*, patent owners trying to defend mental-process claims such as these have attempted to conflate patent-ineligible useful ideas implemented on a computer, with patent-eligible improvements to the computer itself. *See, e.g., RecogniCorp, LLC v. Nintendo Co.*, 855 F.3d 1322, 1324, 1327 (Fed. Cir. 2017) (holding that a computer-implemented process for creating images that started with data, added an algorithm, and ended with new data was directed to an abstract idea and did not improve the functioning of a computer, even though it required less memory and bandwidth than prior art processes); *Evolutionary Intelligence, LLC v. Sprint Nextel Corp.*, 137 F. Supp. 3d 1157, 1166–67 (N.D. Cal. 2015) (granting Rule 12(b)(6) dismissal for patent ineligibility of claims directed to solving an “information organization problem,” and rejecting argument that the claims “improve the functioning of computers”), *aff’d*, 677 F. App’x. 679 (Fed. Cir. 2017). They tout the

1 inherent benefits of better math or other improved mental process, such as faster results or use of
2 less memory, as if those arise from an improvement to the computer itself as a tool. But better math
3 or information does not make a better computation tool, be it a slide rule, abacus, human brain or
4 computer. *Cf. BSG Tech LLC v. BuySeasons, Inc.*, 899 F.3d 1281, 1288 (Fed. Cir. 2018) (“[A]n
5 improvement to the information stored by a database is not equivalent to an improvement in the
6 database’s functionality.”).

7 Much math and other mental processes when implemented by a computer can reduce
8 memory usage and execution time, without improving the computer. For example, it takes less
9 memory and less execution time—whether performed by a computer or by pen and paper— to
10 simply multiply the number 17 by a million rather than add 17 to itself a million times. That
11 information-based idea is useful but does not make a better computer, pen or paper, and it is not
12 eligible for patenting. While the computer obtains the result more quickly while using less memory,
13 those benefits are inherent in the improved mental process. They do not make the computer operate
14 differently. Here, too, the alleged benefits that arise from discarding certain information are inherent
15 in the abstraction idea itself, not from a change in the computer.

16 Like the ’863 patent, the patent in *RecogniCorp* touted that its information processing idea
17 “required less [computer] memory” than existing techniques. 855 F.3d at 1324. It also required less
18 network bandwidth. *Id.* Without questioning those assertions of utility, the Federal Circuit affirmed
19 a Rule 12(c) judgment of patent ineligibility, holding that the patent “does not claim a software
20 method that improves the functioning of a computer,” *id.* at 1327, but instead that its claims were
21 “directed to the abstract idea of encoding and decoding image data,” *id.* at 1324. As in *RecogniCorp*,
22 the ’863 patent claims are directed to an abstract idea because they start with a block of information
23 (data), apply an algorithm (of discarding information to create a smaller sub-set), and end with a
24 new form of data (the abstraction). *See id.* at 1327. That this may be useful when implemented in a
25 computer is irrelevant because even useful abstract ideas are abstract and therefore patent ineligible.
26 *Flook*, 437 U.S. at 588, 591.

1 Alice Step Two: A claim directed to an abstract idea may nevertheless be patent eligible if it
 2 also recites a “saving inventive concept” in application of the idea, *Two-Way Media*, 874 F.3d at
 3 1338, that adds “significantly more” to the abstract idea, *Alice*, 573 U.S. at 217–18, 221–22. This
 4 requires an “innovation in the non-abstract application realm.” *SAP Am.*, 898 F.3d at 1163; *accord*
 5 *buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350, 1353 (Fed. Cir. 2014) (requiring “a ‘new and useful
 6 application’ of the ineligible matter in the physical realm”). A claim’s use of the abstract idea
 7 identified in Step One “cannot supply the inventive concept that renders the invention ‘significantly
 8 more’ than” that idea. *ChargePoint, Inc. v. SemaConnect, Inc.*, 920 F.3d 759, 774 (Fed. Cir. 2019)
 9 (quoting *BSG Tech*, 899 F.3d at 1290); *see Chamberlain Grp., Inc. v. Techtronic Indus. Co.*, 935
 10 F.3d 1341, 1349 (Fed. Cir. 2019) (“Wireless communication cannot be an inventive concept here,
 11 because it is the abstract idea that the claims are directed to.”).

12 Before determining whether claim elements provide an “‘inventive concept’ in application”
 13 of the abstract idea a court first must identify those claim elements that are not abstract. *SAP Am.*,
 14 898 F.3d at 1168–70. This threshold step is necessary because *Alice* Step Two addresses the
 15 “additional elements” the claim appends to the abstract idea, not the abstract idea itself. The
 16 Supreme Court made this distinction repeatedly in *Mayo* and *Alice*, referring to “additional
 17 elements,” “additional features,” “other elements,” “additional steps,” “other steps,” steps “apart
 18 from” the abstract idea (or natural law), and asking “what else is there?” *Alice*, 573 U.S. at 217, 221,
 19 223; *Mayo*, 566 U.S. at 72–73, 77–81, 90. For example, the “ordered combination” of “additional
 20 elements” the *Alice* Court analyzed in Step Two were the claims’ “computer components,” not the
 21 abstract idea identified in Step One. *Alice*, 573 U.S. at 225. *See SAP Am.*, 898 F.3d at 1169
 22 (disregarding under Step Two certain claimed operations because they “simply provide further
 23 narrowing of what are still mathematical operations. They add nothing outside the abstract realm.”
 24 (citation omitted)).

25 Additional elements that merely limit the claim’s idea “to a particular technological
 26 environment” are insufficient. *Alice*, 573 U.S. at 223. So are conventional post-solution activities
 27 such as using the solution of an algorithm in some conventional activity. *Flook*, 437 U.S. at 590
 28

1 (“The notion that post-solution activity, no matter how conventional or obvious in itself, can
 2 transform an unpatentable principle into a patentable process exalts form over substance. . . . [T]he
 3 Pythagorean theorem would not have been patentable, or partially patentable, because a patent
 4 application contained a final step indicating that the formula, when solved, could be usefully applied
 5 to existing surveying techniques.”). So too are mere data-gathering steps, *Mayo*, 566 U.S. at 79, and
 6 generic elements or combinations of elements. *Alice*, 573 U.S. at 225 (holding claim steps requiring
 7 “use of a computer to obtain data, adjust account balances, and issue automated instructions” do “no
 8 more than require a generic computer to perform generic computer functions”); *SAP Am.*, 898 F.3d
 9 at 1170 (rejecting an argument that the inclusion of “parallel processing” computing architecture in
 10 a claim rendered it patent eligible, where, “[t]o the extent that parallel processing is discussed in the
 11 specification, it is characterized as generic parallel processing components—not even asserted to be
 12 an invention of [the patentee]—on which the claimed method could run”). Neither does “claiming
 13 the improved speed or efficiency inherent with applying the abstract idea on a computer provide a
 14 sufficient inventive concept.” *Intellectual Ventures I LLC v. Capital One Bank (USA)*, 792 F.3d
 15 1363, 1367 (Fed. Cir. 2015).

16 Also inadequate under Step Two are purely functional claim elements, which claim a result
 17 or function without a particular way for how to achieve or perform it. *See Intellectual Ventures I*
 18 *LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1342 (Fed. Cir. 2017) (“[T]he claim language here
 19 provides only a result-oriented solution, with insufficient detail for how a computer accomplishes
 20 it. Our law demands more.”); *In re TLI Commc’ns LLC Patent Litig.*, 823 F.3d 607, 613, 615 (Fed.
 21 Cir. 2016) (noting that particularly in view of the specification’s “abstract functional descriptions”
 22 of these tangible components, “the recited physical components behave exactly as expected
 23 according to their ordinary use,” and thus “recitation of a ‘telephone unit,’ a ‘server,’ an ‘image
 24 analysis unit,’ and a ‘control unit’ fail to add an inventive concept sufficient to bring the abstract
 25 idea into the realm of patentability”).

26 Likewise, routine, well-known and conventional elements cannot save a claim under Step
 27 Two. *Versata Dev. Grp., Inc. v. SAP Am., Inc.*, 793 F.3d 1306, 1335 (Fed. Cir. 2015). To be a
 28

1 “saving inventive concept” in application, *Two-Way Media*, 874 F.3d at 1338, the claim’s
 2 application of the abstract idea instead must be novel and non-obvious. As explained in *Alice*, the
 3 Supreme Court in *Benson* required the additional element(s) to be novel: “[b]ecause the algorithm
 4 was an abstract idea, the claim had to supply a ‘new and useful’ application of the idea in order to
 5 be patent eligible.” *Alice*, 573 U.S. at 222 (quoting *Benson*, 409 U.S. at 67); *accord SAP Am.*, 898
 6 F.3d at 1170 (“[A]n invocation of already-available computers that are not themselves plausibly
 7 asserted to be an advance, for use in carrying out improved mathematical calculations, amounts to
 8 a recitation of what is ‘well-understood, routine, [and] conventional.’” (quoting *Mayo*, 566 U.S. at
 9 73)). The additional element(s) also must not be obvious. *Flook*, 437 U.S. at 590, 594; *Mayo*, 566
 10 U.S. at 81.

11 Here, there is no saving inventive concept in application of the abstract idea recited in any
 12 ’863 patent claim. Nearly all of the claims’ recitations are in the abstract realm and thus not even
 13 candidates for a Step Two inventive concept in application. In particular, nearly all of the claims’
 14 language recites either *abstract information* (a “representation” of a design, “blocks” of information,
 15 “physical interconnect information,” the “abstraction” information, two “sub-set[s]” of information,
 16 “description[s],” “contents,” “data inputs,” “list[s],” a “model,” etc.) or *mental steps processing*
 17 *such information* (“processing” information, “retaining” information, “replacing” certain
 18 information with other information, “determining” information, “building” various lists of
 19 information, “removing” information from a list, “labelling” information, “checking” information,
 20 “including” certain information in the “abstraction,” etc.). These information-based mental steps
 21 also are purely functional, without specifying any particular structure or physical acts taken to
 22 implement the step—which is another disqualifier under Step Two. *See supra* at p. 11.

23 The preambles of the independent claims recite the technological environment of integrated
 24 circuit design, which cannot be the saving inventive concept. Claim 35’s preamble also recites “a
 25 computer-readable medium” (’863 20:7–8, ECF No. 1-2) but that is a purely generic recitation of a
 26 conventional computer component, not a purported innovation. Each independent claim recites
 27 “utilizing said abstraction in another development phase performed on said parent block” (*id.* at
 28

17:18–20, 20:30–31), but this is a purely functional post-solution activity, indicating merely that the abstraction information is used in some *unspecified* manner. There is nothing more in any of the claims. There is therefore no inventive concept in application of their abstract idea.

Finally, an “important clue” to patent eligibility is whether the patent claim recites a particular machine or particular transformation of a particular article. *Bilski v. Kappos*, 561 U.S. 593, 604 (2010). That clue further supports granting this motion because the claims in the ’863 patent require no particular machine and no particular transformation of any particular article. *See Evolutionary Intelligence*, 137 F. Supp. 3d at 1169 (holding that claims reciting a generic computer failed this machine-or-transformation test).

In sum, as a matter of law each claim of the ’863 patent is invalid for being directed to an abstract idea without any saving inventive concept in application of the idea. The Court therefore should dismiss with prejudice the Complaint’s assertion of infringement of the ’863 patent. *Cf. Chargepoint*, 920 F.3d at 773–75 (affirming dismissal under Rule 12(b)(6) where the patent claims and specification made clear that the only possible innovation was the abstract idea itself).

B. The ’655 Patent Is Invalid Under Section 101 Of The Patent Act

The focus of asserted U.S. Pat. No. 8,407,655 (ECF No. 1-6) is a corollary of the ’863 patent’s “key idea”: *receiving partial information and then estimating missing values from other values that are present*. This too is a quintessential mental process. Humans routinely engage in the mental exercise of *receiving partial information and then estimating missing values from other values that are present*. For example, a grade school math problem might be: “If a store flyer has a store-wide sale showing a sale price of \$5 for an item that normally costs \$10, what do you estimate is the sales price of an item that normally costs \$14?” The student might determine that the first item is half off (i.e., price drops from \$10 to \$5) such that the second item will also be half off (price drops from \$14 to \$7). The ’655 patent centers on this same thought process, albeit in a more technological field. The gist of the idea is described in the following paragraph of the specification with reference to Fig. 6 (reproduced below with highlighting added).

In general, the system may use any estimation function to estimate the parameter values. In one embodiment, the system may determine a ratio between the values of parameter P1 for gate 602 in scenarios S1 and S2, and use the ratio to determine the value of parameter P1 for gate 604 in scenario S2. For example, in FIG. 6, the ratio between the values of parameter P1 for gate 602 in scenarios S1 and S2 is equal to 2. This ratio can then be used to determine the value of parameter P1 for gate 604 in scenario S2 to be 7.

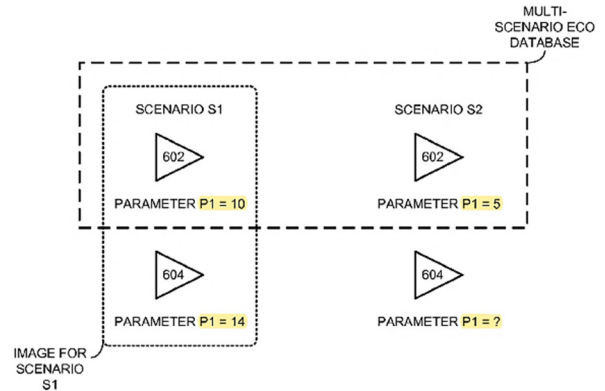


FIG. 6

(’655 6:66–7:7, ECF No. 1-6.)

Estimating missing information is inherently a mental process ineligible for patenting. The claims are thus invalid under 35 U.S.C. § 101 as a matter of law. *See supra* at pp. 5–9.

’655 Patent Specification: The patent identifies its “field of the invention” as “fixing design requirement violations in multiple multi-corner multi-mode scenarios” in “electronic design automation.” (’655 1:8–11, ECF No. 1-6.) This fixing occurs during the design information stage before a circuit is manufactured. (*Id.* at 1:21–24.) The patent explains that such fixing is “typical”: “the process of identifying and fixing violations typically needs to be performed multiple times and across multiple scenarios.” (*Id.* at 1:52–54.) A “scenario” is information describing conditions under which the circuit may be manufactured or operated. (*Id.* at 1:31–50.) Each scenario may contain a large amount of information which can slow the process of fixing design requirement violations where multiple scenarios must be considered. (*See id.* at 1:54–59.)

The ’655 patent’s alleged contribution is a two-part idea. First, as in the ’863 patent, create a smaller sub-set of the information. Specifically, create a “multi-scenario ECO [engineering change order] database [which] can store a subset of parameter values for a subset of circuit objects in multiple scenarios.” (*Id.* at 2:2–3, 3:38–40.) Less information takes less room. Hence, because “the multi-scenario ECO database may only need to store a subset of the parameter values for only a subset of the circuit objects, the multi-scenario ECO database can be substantially smaller in size

when compared to a scenario image.” (*Id.* at 8:30–34.) The second part of the idea flows from the first. If the subset of values is missing some value that is needed, then estimate that missing value from other values that are present. As quoted *supra* at p. 14, the patent gives an example of this estimating in connection with Fig. 6. This estimating part of the idea is repeated throughout the specification. (*Id.* at Figs. 6, 7, Abstract, 2:6–10, 6:31–34, 6:46–7:7, 8:59–9:5.) The combination of these two parts is the idea of *receiving partial information and then estimating missing values from other values that are present*. The specification does not require any specialized computer for implementing this idea. (*See id.* at Figs. 3 and 4.)

’655 Patent Claims: The patent has three substantively similar independent claims, claim 1 reciting a method, claim 11 a computer-readable storage medium, and claim 21 a system. Claim 1 recites:

1. A method for fixing design requirement violations in a circuit design in multiple scenarios, the method comprising:

receiving a scenario image, wherein the scenario image stores parameter values for circuit objects in a scenario;

receiving a multi-scenario engineering change order (ECO) database, wherein the multi-scenario ECO database stores a subset of parameter values for a subset of circuit objects in the multiple scenarios; and

determining, by using one or more processors, an ECO to fix one or more design requirement violations, wherein said determining includes *estimating* parameter values for circuit objects in at least some of the multiple scenarios based on parameter values stored in the scenario image and the multi-scenario ECO database.

(*Id.* at 9:54–67 (emphases added).)

This method begins by “receiving” two sets of information, one a scenario having parameter values and the other (the ECO database) having “a subset of parameter values.” It then has a “determining” step including an “estimating” step. The specification describes determining what ECO (engineering change order) to use to adjust the design information. (*Id.* at 3:31–40.) The “estimating” step estimates parameter values based on other parameter values in the received

scenario and subset. Although this claim recites using a processor, what it recites is a mental process: *receiving partial information and then estimating missing values from other values that are present*. All of the above applies equally to claim 11 and claim 21, in which the two sets of information are stored, not received. The dependent claims specify some details about the information being processed, such as the type of parameter values or violations to be fixed.

No claim requires any particular structures or physical acts to perform the claimed process. Nor does any claim restrict how parameter values are estimated based on other values. While the specification gives the above-quoted example of extrapolating values using ratios, it notes that “the system may use any estimation function to estimate the parameter values.” (*Id.* at 6:66–67.)

1. The Claims Are Invalid Under Section 101’s Abstractness Exclusion To Patent Eligibility

The ’655 patent’s claims are directed to an abstract idea without a saving inventive concept and thus are invalid under 35 U.S.C. § 101. The governing law is explained *supra* at pp. 5–13.

Alice Step One: The ’655 patent claims indisputably *recite* the idea of *receiving partial information and then estimating missing values from other values that are present*. The first two steps of claim 1 involve “receiving” information including a “subset” of values, *i.e.*, partial information, and the last step is “estimating” values based on other values present in the partial information. The ’655 patent claims also are *directed to* this idea, *i.e.*, focus on this idea. As noted, three of the four steps in claim 1 recite this abstract idea. The fourth step of “determining” an engineering change order to fix a design requirement violation, is not the patent’s alleged advance over the prior art. On the contrary, the patent’s “Related Art” section explains the “typical” process for fixing design requirement violations. (*Id.* at 1:12–59.)² Instead, the specification touts as its

² While unnecessary, the Court may take judicial notice that the titles of five of the nine prior art references cited on the face of the ’655 patent, namely those naming “Dinter” or “Oh” as inventors, include “engineering change order.” *See, e.g.*, U.S. Pat. No. 7,331,028 (“Engineering change order scenario manager”); *cf. OIP Tech., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1362 (Fed. Cir. 2015) (providing that a court may take judicial notice when deciding a motion to dismiss asserting invalidity under *Alice*).

1 alleged advance over the prior art the idea of *receiving partial information and then estimating*
 2 *missing values from other values that are present.* (*Id.* at 4:58–5:2, 5:26–28, 8:30–34.)

3 This idea is a patent-ineligible abstract idea because it is a mental process and mere
 4 information processing. Receiving information, determining information, and estimating
 5 information are quintessential human thought processes.³ For example, one who receives (or
 6 remembers) only the forecast low and high temperature for tomorrow could estimate that at 10 a.m.
 7 the temperature will be halfway between the forecast high and low. That is a mental process.⁴

8 These claims are *not* directed to an improved computer or computer operation. While they
 9 recite a processor or computer, their steps and functions remain mental steps—just as multiplication
 10 remains a mental process even when done on a computer. *See CyberSource*, 654 F.3d at 1372, 1375–
 11 76 (invalidating patent claims, including one requiring a computer, because the steps “can be
 12 performed in the human mind, or by a human using a pen and paper”).

13 Nothing in the patent suggests that the idea of *receiving partial information and then*
 14 *estimating missing values from other values that are present* either requires or creates better
 15 computer capabilities. Nothing precludes using a generic computer from 1998 performing its basic
 16 data processing functions in the standard way. On the contrary, by showing a generic depiction of
 17 the computer system in Figs. 3, 4, the patent’s “specification makes clear that off-the-shelf computer
 18 technology is usable to carry out the analysis.” *SAP Am.*, 898 F.3d at 1168; *cf. Purepredictive*, 2017
 19 WL 3721480, at *7.

22 ³ “Estimating” is a mental process whether it is limited to the patent’s ratio technique (*id.* at 6:67–
 23 7:7) or covers “any estimation function” (*id.* at 6:66).

24 ⁴ Even if “determining” an engineering change order were also part of the claims’ focus, they still
 25 would be directed to an abstract idea because determining how to adjust information is another
 26 mental process. “Adding one abstract idea (math) to another abstract idea (encoding and decoding)
 27 does not render the claim non-abstract.” *RecogniCorp*, 855 F.3d at 1327; *see Papst Licensing*, 193
 28 F. Supp. 3d at 1086 (granting Rule 12(c) judgment of patent ineligibility of claim “directed to the
 concepts of (1) using a simulator to determine whether a memory test violates a set of rules; and (2)
 using a packer to optimize the memory test”).

1 The patent asserts that using a smaller sized multi-scenario database reduces the amount of
 2 memory required and the amount of execution time to verify the design information. (’655 4:58–
 3 5:2, ECF No. 1-6; *see also id.* at 5:26–28, 8:30–34.) That may be, but as explained *supra* at pp. 7–
 4 9 in connection with the ’863 patent, such benefits are inherent in the abstract idea itself, not in
 5 some innovative and particular application of the idea, and even useful abstract ideas are abstract
 6 ideas. *Compare SAP Am.*, 898 F.3d at 1168 (holding that “the focus of the claims is not a physical-
 7 realm improvement but an improvement in wholly abstract ideas—the selection and mathematical
 8 analysis of information, followed by reporting or display of the results”) *with Enfish*, 822 F.3d at
 9 1339 (holding patent-eligible claims for “a specific type of data structure designed to improve the
 10 way a computer stores and retrieves data in memory”). Less information inherently requires less
 11 space to store it and less time to process it, whether it is stored and processed by paper and a human
 12 brain, or a computer memory and processor.

13 Alice Step Two: No claim includes a saving inventive concept in application of the abstract
 14 idea. Nearly all of the claims’ recitations are in the abstract realm and thus not even candidates for
 15 such an inventive concept. *See supra* at pp. 10–11. In particular, nearly all of the claims’ language
 16 recites either *abstract information* (“a circuit design,” “a scenario image,” “parameter values,” “a
 17 scenario,” an “ECO” database, “a subset of parameter values,” “an ECO,” etc.) or *mental steps*
 18 *processing information* (“receiving,” “determining,” and “estimating” such information). These
 19 information-based mental steps also are purely functional, without specifying any particular
 20 structure or physical acts taken to implement the step—which is another disqualifier under *Alice*
 21 Step Two. *See supra* at p. 11.

22 The preambles of the independent claims recite the technological environment, which cannot
 23 be the saving inventive concept. The claims also recite a generic “processor,” “computer,”
 24 “memory,” “database,” and “computer-readable storage medium”—each encompassing computer
 25 elements that long have been conventional. *See, e.g., Mortgage Grader*, 811 F.3d at 1324–25
 26 (holding that claims adding only generic computer elements such as a “database” do not satisfy the
 27
 28

inventive concept requirement). There is nothing more in any of the claims, and thus no saving inventive concept in application of the claims' abstract idea.

Further, the '655 patent claims require no particular machine or particular transformation of any article, which is an "important clue" of patent ineligibility. *Bilski*, 561 U.S. at 604; *cf. Benson*, 409 U.S. at 71–72.

In sum, as a matter of law each claim of the '655 patent is invalid for being directed to an abstract idea without any saving inventive concept in application of the idea. The Court therefore should dismiss with prejudice the Complaint's assertion of infringement of the '655 patent.

C. The '640 Patent Is Invalid Under Section 101 Of The Patent Act

Another class of mental processes is mathematics, including statistical analysis. This is the express focus of U.S. Pat. No. 8,407,640 (ECF No. 1-1), whose very title, "Sensitivity-based complex statistical modeling for random on-chip variation," refers to "statistical modeling." Each '640 patent claim is directed to the idea of *statistical analysis of information describing a circuit*. Claim 1 is the only independent claim and it recites a method of "statistical static timing analysis," comprising a series of steps of "determining" values and then storing values. ('640 11:24–12:22, ECF No. 1-1.) As statistical analysis and other mathematical methods are mental processes ineligible for patenting, the claims are invalid under 35 U.S.C. § 101 as a matter of law. *See SAP Am.*, 898 F.3d at 1167, 1170 (affirming Rule 12(c) judgment based on patent-ineligibility of claims analyzing information using mathematical techniques, including statistical analysis, and reporting or displaying the results); *Purepredictive*, 2017 WL 3721480, at *5 (dismissing complaint asserting infringement of claims "directed to a mental process and the abstract concept of using mathematical algorithms to perform predictive analytics").

'640 Patent Specification: The patent describes existing statistical analyses used in its technical field. ('640 1:18–19, ECF No. 1-1.) It proposes a supposedly improved statistical analysis, and describes examples thereof using mathematical equations, functions, and algorithms. The patent is full of math. Variations of "calculate" appear 35 times, of "statistical" 67 times, and of "value"

40 times. Other than a citation to a journal name (*id.* at 1:63–64), neither the patent’s written description nor its drawings use the word “computer” or depict a computer.

'640 Patent Claims: The patent has eight claims, all methods, and only claim 1 is independent. Each is directed to the idea of *statistical analysis of information describing a circuit*. No claim requires any non-generic physical device, physical circuit, or particular physical acts. Claim 1 recites:

1. A computer-implemented method of statistical static timing analysis (SSTA) comprising:

receiving, by a computer, *information* describing a circuit, the information comprising:

a first input node, a second input node, and an output node, such that there is

a first path from the first input node to the output node, and

a second path from the second input node to the output node,

the first path and the second path converging at the output node,

each path associated with a parametric delay represented as a nominal delay value and a standard deviation value, the standard deviation value representing a timing impact of local random variation;

performing statistical static timing analysis (SSTA) based on on-chip variation (OCV) model, the SSTA comprising, *determining* a parametric delay at the output node based on a statistical maximum of parametric delay through the first path and parametric delay through the second path, wherein the statistical maximum preserves N sigma corner delay values, and *determining* the statistical maximum comprises:

determining a nominal delay value of the parametric delay at the output node based on a maximum of:

nominal delay value of the parametric delay through the first path, and

nominal delay of the parametric delay through the second path; and

1 *determining* a standard deviation value of the parametric delay at the
2 output node, comprising:

3 *determining* a first value as a maximum of:

4 a weighted sum of nominal delay value and standard deviation
5 value of the parametric delay through the first path, and

6 a weighted sum of nominal delay value and standard deviation
7 value of the parametric delay through the second path;

8 *determining* a second value as a maximum of:

9 the nominal delay value of the parametric delay through the first
10 path, and

11 the nominal delay value of the parametric delay through the
12 second path; and

13 *determining* the difference between the first value and the second
14 value; and

15 standard deviation value of the parametric delay through the first
16 path, and

17 standard deviation value of the parametric delay through the second
18 path; and

19 *storing* the nominal delay and the standard deviation value of the
20 parametric delay for the output node.

21 (*Id.* at 11:23–12:22 (“claim 1”) (emphases added).)

22 This claim’s method begins by receiving “information” describing a circuit, which circuit
23 may not physically exist. It then performs a type of statistical analysis on this information. This
24 statistical analysis includes seven “determining” steps, each one determining some value, including
25 a “statistical maximum” and a “standard deviation value.” It ends by storing (in some unspecified
26 manner) two of the values it determined. Although it states that it is a “computer-implemented
27 method,” what it recites is a mental process of statistical analysis of information.

28 Dependent claims 2–8 recite determining additional values, and add some details to the
statistical analysis steps of claim 1. Claims 7 and 8 recite using (in some unspecified manner) certain

determined values in another type of analysis. No claim requires any particular structures or physical acts to perform the claimed statistical analysis.

**1. The Claims Are Invalid Under Section 101's
Abstractness Exclusion To Patent Eligibility**

The '640 patent's claims are directed to an abstract idea and thus are invalid under 35 U.S.C. § 101. The governing law is set forth *supra* at pp. 5–13.

Alice Step One: An established sub-category of patent-ineligible mental processes is mathematical algorithms and improved methods of calculation. In *Flook*, 437 U.S. at 595 n.18, the Supreme Court explained that “our holding today is that a claim for an improved method of calculation, even when tied to a specific end use is unpatentable subject matter under § 101.” *See also SAP Am.*, 898 F.3d at 1168 (holding ineligible claims focused on “an improvement in wholly abstract ideas—the selection and mathematical analysis of information, followed by reporting or display of the results”); *In re Warmerdam*, 33 F.3d 1354, 1355, 1360 (Fed. Cir. 1994) (finding a process for controlling objects to avoid collisions to be “nothing more than the manipulation of basic mathematical constructs, the paradigmatic ‘abstract idea’”). Under these principles, the claims of the '640 patent are patent ineligible.

As in *SAP Am.*, the mathematical algorithms here represent “statistical analyses” of information. 898 F.3d at 1165. Specifically, the alleged advance contributed by the '640 patent resides in *statistical analysis of information describing a circuit*. This is clear from the patent's title, Abstract, Background, Summary of the Invention, Description of an Embodiment, and claims—each of which focuses on statistical analysis. For example, the Summary identifies one of the alleged innovations of its statistical analysis as a “concept,” saying it “introduces complex variation concept.” ('640 2:15–16, ECF No. 1-1; *see also id.* at 6:16.) The other two alleged innovations also are statistical analyses: “statistical min/max operations for random variations” (*id.* at 2:21–24) and “a statistical corner evaluation method for complex random variables” (*id.* at 2:27–28). The specification includes twenty numbered mathematical equations and functions. (*Id.* at 3:40–11:15.) All three headings in the Description section concern math: “complex random variable,” “statistical

1 max operations,” and “statistical corner evaluation.” (*Id.* at 3:16, 6:25, 9:61.) The patent does not
 2 describe any new or improved computer component, however.

3 Each claim is directed to this idea of *statistical analysis of information describing a circuit*.
 4 Claim 1 is representative. The claim preamble declares that the method is a “method of statistical
 5 static timing analysis (SSTA).” (*Id.* at 11:23–24.) The patent explains that SSTA is a statistical
 6 “methodology for modeling variations.” (*Id.* at 1:52.) The method’s first step is to receive
 7 information “describing a circuit.” (*Id.* at 11:25–38.) No claim requires that the circuit be
 8 manufactured. The method’s next step is “performing statistical static timing analysis (SSTA) based
 9 on on-chip variation (OCV) model.” (*Id.* at 11:39–40.) Claim 1 then specifies seven steps of
 10 “determining” some value, including determining “the difference between” two other values and
 11 “determining” a “maximum of” two other values. (*Id.* at 11:41–12:16.) These determined values
 12 include statistical values such as “a standard deviation value” (*id.* at 12:1) and a “statistical
 13 maximum” (*id.* at 11:46–47). Claim 1’s method then stores two of the determined values. (*Id.* at
 14 12:21–22.) In sum, the claimed method performs mathematical operations on information to
 15 determine values.

16 This idea— *statistical analysis of information describing a circuit*—is a patent-ineligible
 17 abstract idea because it is a mental process (a mathematical algorithm) and mere information
 18 processing. The Federal Circuit has declared patent-ineligible under *Alice* legions of similar
 19 information-based claims. *See Elec. Power Grp.*, 830 F.3d at 1353–54.

20 These claims are *not* directed to an improved computer or computer operation. The
 21 specification does not mention any particular type of computer nor suggest that the idea of *statistical*
 22 *analysis of information describing a circuit* either requires or creates better computer capabilities.
 23 Nothing precludes using a generic computer from 1998 performing its basic data processing
 24 functions in the standard way to perform this method of statistical analysis. *Cf. Purepredictive*, 2017
 25 WL 3721480, at *7.

26 The patent implies that its statistical analysis method reduces the amount of memory
 27 required and the amount of execution time to analyze the information. (’640 1:64–2:4, ECF No. 1-
 28

1 1; *see also id.* at 4:22–23.) But—as is true of the mental processes claimed in the ’863 and ’655
 2 patents—any such utility is inherent in the abstract statistical analysis itself, and even useful abstract
 3 ideas are abstract ideas. *See supra* at pp. 7–9; *cf. RecogniCorp*, 855 F.3d at 1324, 1327 (holding a
 4 computer-implemented process requiring less memory and bandwidth was directed to an abstract
 5 idea not improving the functioning of a computer).

6 Alice Step Two: No claim recites a saving inventive concept in application of the abstract
 7 idea. Nearly all of the recitations in the claims are in the abstract realm and thus not even candidates
 8 for an inventive concept in application. In particular, nearly all of the claims’ language recites either
 9 *abstract information* (“information describing a circuit,” “delay value[s],” “standard deviation
 10 value,” “a first value,” “weighted sum[s],” “a second value,” “the difference,” *etc.*) or *mental steps*
 11 *processing such information* (“receiving” information, “performing statistical static timing
 12 analysis,” and “determining” values). These information-based mental steps also are purely
 13 functional, without specifying any particular structure or physical acts taken to implement the step—
 14 which is another disqualifier under *Alice Step Two*. *See supra* at p. 11.

15 Claim 1’s preamble and reference to a “circuit” indicate the technological environment,
 16 which cannot be the saving inventive concept. Claim 1 ends by reciting that two values are stored,
 17 but that is a conventional post-solution step of most any mathematical algorithm. The rest of claim
 18 1 describes the abstract idea. The dependent claims in general merely narrow the mathematical
 19 algorithm of claim 1. *Cf. SAP Am.*, 898 F.3d at 1169 (holding two dependent claims patent ineligible
 20 because the features they add “simply provide further narrowing of what are still mathematical
 21 operations” but “add nothing outside the abstract realm”). Dependent claims 7 and 8 recite “using”
 22 in some unspecified manner one of the determined values in a “timing analysis.” This is a purely
 23 functional post-solution activity. There is nothing more in any of the claims, and thus no saving
 24 inventive concept in application of the claims’ abstract idea.

25 Further, the ’640 patent claims require no particular machine or particular transformation of
 26 any article—an “important clue” of patent ineligibility. *Bilski*, 561 U.S. at 604.

In sum, as a matter of law each claim of the '640 patent is invalid for being directed to an abstract idea without any saving inventive concept in application of the idea. The Court, therefore, should dismiss with prejudice the Complaint's assertion of infringement of the '640 patent.

D. The Patents' Invalidity Is Ripe For Adjudication Under Rule 12

Implementing an abstract idea on a "generic computer to perform generic computer functions" is patent ineligible as a matter of law. *Alice*, 573 U.S. at 225. The application of that principle to the claims here requires no fact finding. The complaint contains no well-pled facts material to invalidity under section 101. Nor is construction of the claims' scope needed because even a narrow mental process is abstract. *See supra* at p. 6. Thus, as in scores of *Alice* progeny, the '863, '655 and '640 patent infringement causes of action should be dismissed with prejudice under Rule 12. *See, e.g., Genetic Techs. Ltd. v. Merial L.L.C.*, 818 F.3d 1369, 1373–74 (Fed. Cir. 2016) (affirming dismissal of complaint: "We have repeatedly recognized that in many cases it is possible and proper to determine patent eligibility under 35 U.S.C. § 101 on a Rule 12(b)(6) motion.").

Dated: September 1, 2020

KLARQUIST SPARKMAN, LLP

By: /s/Kristin L. Cleveland

Kristin L. Cleveland (SBN 184639)

kirstin.cleveland@klarquist.com

Klaus H. Hamm (SBN 224905)

klaus.hamm@klarquist.com

Salumeh R. Loesch (*Pro Hac Vice*)

salumeh.loesch@klarquist.com

John D. Vandenberg (*Pro Hac Vice*)

john.vandenberg@klarquist.com

Mark W. Wilson (*Pro Hac Vice*)

mark.wilson@klarquist.com

KLARQUIST SPARKMAN, LLP

121 SW Salmon Street, Suite 1600

Portland, OR 97204

Telephone: 503-595-5300

Facsimile: 503-595-5301

Paul Alexander (SBN 49997)

Paul.Alexander@arnoldporter.com

ARNOLD & PORTER KAY SCHOLER

Three Embarcadero Center, Tenth Floor

San Francisco, CA 94111

Telephone: 415-471-3100

Facsimile: 415-471-3400

Attorneys for Defendant

Avatar Integrated Systems, Inc.